STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 10, 2007

Mr. Keith Miller
VERSA-LOK Retaining Wall Systems
6348 Highway 36, Suite 1
Oakdale, MN 55128

Subject: Conditional Approval of VERSA-LOK's Reinforced Soil Wall System

Dear Mr. Miller:

The Geotechnical Engineering Unit (GEU) has conditionally approved VERSA-LOK's Reinforced Soil Wall System for use on North Carolina Department of Transportation (NCDOT) projects in accordance with the "NCDOT Policy for Mechanically Stabilized Earth Retaining Walls". Conditionally approved mechanically stabilized earth (MSE) retaining wall systems are subject to the restrictions listed in the NCDOT MSE Retaining Wall Policy. This policy also includes restrictions for MSE wall systems with segmental retaining wall (SRW) units and requirements for attaining full approval of MSE wall systems. The policy may be obtained from: http://www.ncdot.org/doh/preconstruct/highway/geotech/msewalls/

If VERSA-LOK's Reinforced Soil Wall System is fully approved in the future and in addition to the restrictions for MSE wall systems with SRW units listed in the NCDOT MSE Retaining Wall Policy, VERSA-LOK's System will be subject to a maximum design height of 30 ft for NCDOT projects. The design height is defined in the NCDOT MSE Retaining Wall Policy.

AASHTO Standard Specifications for Highway Bridges does not specifically address secondary reinforcements. However, VERSA-LOK has documented a reasonable design method and illustrated the use of this method in example hand and computer calculations in Appendix B of *Evaluation of the VERSA-LOK/Miragrid Reinforced Soil Wall System – Final Report* by the Highway Innovative Technology Evaluation Center (HITEC). VERSA-LOK's Reinforced Soil Wall System will be allowed a design exception to AASHTO regarding the use of secondary reinforcement according to the method in this report.

Based on the HITEC report, Miragrid 5XT or better Miragrid reinforcement is required for use with VERSA-LOK's Reinforced Soil Wall System. In addition, VERSA-TUFF pins are required

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
Fax: 919-250-4237

Website: www.ncdot.org./doh

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

and defined as a miscellaneous component in accordance with NCDOT's Standard Mechanically Stabilized Earth Retaining Walls Special Provision. This provision may be obtained from: http://www.ncdot.org/doh/preconstruct/highway/geotech/provnote/

The HITEC report says that some typical details for obstruction avoidance were submitted but also states that "design calculations to support these details were not submitted, and/or details were insufficient in regard to reinforcement placement". Therefore, either now or with the first MSE wall design submittal for an NCDOT project, submit complete details and calculations that conform to and demonstrate an understanding of Section 5.8.12.4 of the *AASHTO Standard Specifications for Highway Bridges*.

If you have any questions, I can be reached at (919) 250-4088.

Sincerely,

Njoroge W. Wainaina
State Geotechnical Engineer

cc: K. J. Kim, Ph.D., P.E., Eastern Regional Geotechnical Manager (w/ HITEC report)
John Pilipchuk, L.G., P.E., Western Regional Geotechnical Manager (w/ HITEC report)
Don Moore, L.G., Geotechnical Contract Administrator (w/ HITEC report)
Greg Perfetti, P.E., State Bridge Design Engineer
Dave Henderson, P.E., State Hydraulics Engineer
Cecil Jones, P.E., State Materials Engineer
Rodger Rochelle, P.E., State Alternative Delivery Engineer
Tommy Cozart, P.E., Special Design Engineering Supervisor
Randy Garris, P.E., State Contract Officer
Mike Robinson, P.E., State Bridge Construction Engineer
Bridge Maintenance Unit